

**WRITTEN FINDINGS OF THE
WASHINGTON STATE NOXIOUS WEED CONTROL BOARD
(DRAFT STAGE JULY 2007)**

Scientific name: *Hieracium lachenalii* K.C. Gmel.

Synonyms: *Hieracium acuminatum* Jord.
Hieracium vulgatum Fries

Common name: common hawkweed, European hawkweed

Family: Asteraceae

Legal Status: 2008 Class C Noxious Weed

Description and Variation [following Gleason and Cronquist (1991), Klinkenberg, (2006), and Wilson, (2006)]:

Overall Habit: Has typical hawkweed characteristics but without stolons. Between 20-80 cm tall

Roots/Rhizomes: Short, broad rhizome

Stems: Stem is hairy with sparse stellate hairs and many glandular hairs; exudes milky juice when broken.

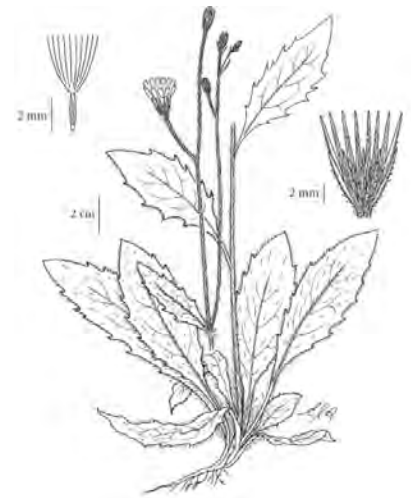
Leaves:

Basal leaves: Well-developed basal leaves are grey-green; broadly elliptical to lance-shaped, strongly toothed, narrowly tapering to a petiole. 1.5-15 cm in length and 0.3-2.0 cm wide.

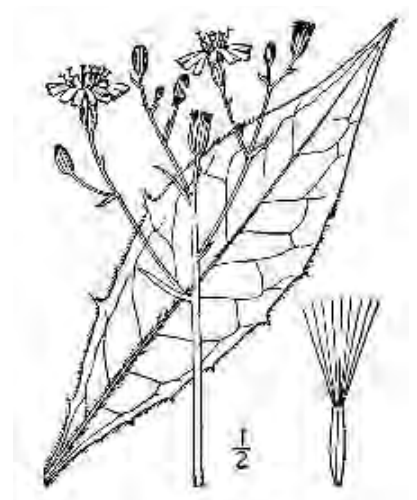
Stem leaves: About 4-7 stem leaves, with upper leaves smaller and sessile

Flowers: 4-12 yellow flowerheads in an open corymbiform (flat-topped or round-topped, simple raceme) inflorescence about 8-11 mm tall; peduncles have many stellate and simple hairs, with occasional dark glandular hairs.

Fruits and Seeds: achenes 2.5-3.5 mm with white to tan pappus



Hieracium lachenalii



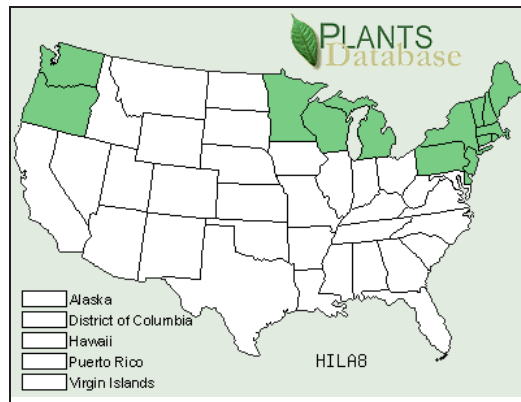
Britton, N.L., and A. Brown. 1913. Illustrated flora of the northern states and Canada. Vol. 3: 329. Courtesy of Kentucky Native Plant Society. Scanned by Omnitek Inc. Usage Requirements.

Habitat: Disturbed sites and in clearings (EFlora), as well as roadsides, gravel riverbeds, waste areas (Klinkenberg, 2006) and fields (Gleason and Cronquist, 1993). According to site descriptions from some herbarium specimens at the WTU Burke Herbarium and observations, *H. lachenalii* is commonly found along gravelly roadsides and highways in Washington.

Geographic Distribution:

Native distribution: *Hieracium lachenalii* is native to much of Europe, including Denmark, Finland, Ireland, Norway, Sweden, United Kingdom, Austria, Belgium, Germany, Estonia, Latvia, Lithuania, the European portion of the Russian Federation, Italy, Romania, Yugoslavia, and France (USDA, ARS, NGRP, 1007).

Distribution in North America: In the United States, *H. lachenalii* occurs in fifteen states in the Northeast, Great Lakes Basin area, and the Pacific Northwest (NatureServe, 2007; USDA/NRCS, 2007). It is also common in Western Canada and southwestern British Columbia (Klinkenberg, 2006), and also occurs in Labrador, New Brunswick, Newfoundland Island, Nova Scotia, Ontario, Prince Edward Island, and Quebec (NatureServe, 2007).



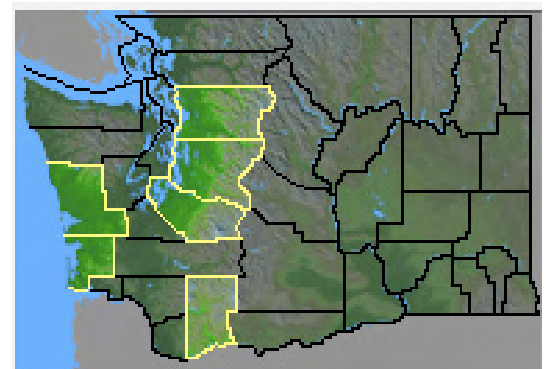
Map courtesy USDA, NRCS. 2005.



Map courtesy NatureServe. 2007

History and Distribution in Washington:

The first sample in the Pacific Northwest was collected near Chilliwack, British Columbia in 1955. *H. lachenalii* was first collected in 1962 in the South Fork Stillaguamish River drainage in Snohomish County at a logging site. *H. lachenalii* has been also recorded in Grays Harbor, Pacific, King, Pierce, and Skamania Counties, according to the WTU Burke Herbarium. However, it should be noted that this distribution information documents where specimens have been collected but does not necessarily indicate that these populations still persist.



Map courtesy Burke Herbarium

Biology:

Growth and development: Like other members of *Hieracium*, *H. lachenalii* is a perennial plant. Because it does not produce vegetative clones, it does not form mats (L. Wilson, pers. comm.)

Reproduction: *Hieracium lachenalii* reproduces through seed production only and does not reproduce vegetatively via stolons or rhizomes (L. Wilson, pers comm.). Seed production is accomplished through the typical pollination process, but *Hieracium* species are also apomictic, meaning they can produce seeds without pollen (Wilson and Callihan, 1999). Hawkweed species are animal-pollinated (Murphy, 2001), and seeds of at least some species are wind-dispersed (Grime et al. (1988) in Honnay et al., 1999).

Control:

Response to herbicides: Nothing found specific to *Hieracium lachenalii*, although control for this *Hieracium* species is similar to that of others (T. Miller and L. Wilson, pers. comm.). *Hieracium aurantiacum* and *H. caespitosum* can be controlled with 2,4-D, clopyralid, and picloram, and appropriate surfactants are recommended (Rinella and Sheley, 2002). A study in Idaho comparing the effects of several herbicides on *H. caespitosum* also found that picloram was highly effective but that imazapic did not provide effective control on this *Hieracium* species (Shinn and Thill, 2003).

Response to cultural methods: Nothing found specific to *Hieracium lachenalii*. Low nutrient soils can be supplemented with fertilizer to encourage growth and competition of desirable grass species (Hanson, 1920; Rinella and Sheley, 2002). It has been suggested that it may be more profitable to convert poor quality pasture land, heavily infested with invasive *Hieracium* species, into tree farms as an alternative to eradication of the weeds (Hanson, 1920). However, timber is not the only crop option. Cultivation of annual crops also precludes the establishment or persistence of invasive *Hieracium* species (Rinella and Sheley, 2002). Please note that label information may change, especially if this document is more than five years old. Please refer to the PNW Weed Management Handbook, available online at <http://weeds.ippc.orst.edu/pnw/weeds> for specific herbicide instructions.

Response to mechanical methods: Nothing found specific to *Hieracium lachenalii*. Mowing before seeds mature can prevent dispersal (Rinella and Sheley, 2002). Small infestations can be removed by thorough hand-digging, especially when the ground is moist, and plants should be properly disposed of (Taylor, 1920). However, it should be noted that soil disturbance can encourage growth of new plants (Rinella and Sheley, 2002). Tarping is also an effective control strategy, but it not practical for large infestations (Taylor, 1920).

Biological control potential: None found.

Economic Importance:

Detrimental: Nothing specific to *Hieracium lachenalii* found in literature. However, *H. lachenalii* is closely related to hawkweed species with documented detrimental impacts, some of which are described by Rinella and Sheley (2002). For example, they compete with desirable pasture species, particular when grazing is heavy. They also compete with native species and are weedy in lawns. Although the *Hieracium* species can be nutritious and are digestible by cattle and sheep, it is not certain whether the species are actually palatable. Some species of *Hieracium* are thought to possess allelopathic pollen (Murphy, 2001), and studies have demonstrated that at least the *Hieracium* species *pilosella* may alter soil nutrient cycling (Ehrenfeld, 2003). It has been estimated that invasive *Hieracium* species can cause an annual loss of approximately \$58.2 million in the western U.S. (Wilson, 2002 in Duncan and Clark, 2005).

Beneficial: Nothing found specific to *H. lachenalii*.

Rationale for listing: Like other nonnative *Hieracium* species on the Noxious Weed List, *Hieracium lachenalii* is an invasive weed that can aggressively compete with desirable pasture and rangeland species, and it also has the potential to displace native species. This species (and others) has been grouped under the general Class C nonnative *Hieracium* species due to difficulty in identifying the taxonomically similar and hybridizing *Hieracium* species. However, with new and improved taxonomic guides (e.g. Wilson, 2006), it is easier to identify and distinguish between many *Hieracium* species in the Pacific Northwest.

References:

- Ehrenfeld, J.G. 2003. Effects of exotic plant invasions on soil nutrient cycling processes. *Ecosystems* 6(6): 503-523.
- Gaskin, J.F. and Wilson, L.M. 2007 Phylogenetic relationships among native and naturalized *Hieracium* (Asteraceae) in Canada and the United States based on plastid DNA sequence. *Systematic Botany* 32(2): 478-485.
- Gleason, H.A. and A. Cronquist. 1991. *Manual of Vascular Plants of Northeastern United States and Canada*, Second Edition. New York: The New York Botanical Garden. Pp 313-315.
- Grime, J.P., Hodgson, J.G., and R. Hunt. 1988. *Comparative Plant Ecology: A functional approach to common British Species*. Unwin-Hyman, London.
- Honnay, O. Endels, P., Vereecken, H., and M. Hermy. 1999. The role of patch area and habitat diversity in explaining native plant species richness in disturbed suburban forest patches in northern Belgium. *Diversity and Distribution* 5: 129-141.
- Klinkenberg, Brian. (Editor) 2006. E-Flora BC: Electronic Atlas of the Plants of British Columbia [www.eflora.bc.ca]. Lab for Advanced Spatial Analysis, Department of Geography, University of British Columbia, Vancouver. [Accessed 7/3/2007]
- NatureServe. 2007. NatureServe Explorer: An online encyclopedia of life [web application]. Version 6.2. NatureServe, Arlington, VA. Available <http://www.natureserve.org/explorer/> [Accessed: 29 June 2007]
- Rinella, M.J. and R.L. Sheley. 2002. Orange and meadow hawkweed. Bozeman, MT: Montana State University MT199816 AG. 3 p.
- Shinn, S. L. and Thill, D.C. 2003. The response of yellow starthistle (*Centaurea solstitialis*), spotted knapweed (*Centaurea maculosa*), and meadow hawkweed (*Hieracium caespitosum*) to imazapic. *Weed Technology* 17: 94-101.
- Stalter, R. and S. Scotto. 1999. The vascular flora of Ellis Island, New York City, New York. *Journal of the Torrey Botanical Society* 126(4): 367-375.
- John L. Strother, J.L. 1997. *Hieracium*. In: *Flora of North America* Editorial Committee, eds. 1993+. *Flora of North America North of Mexico*. 12+ vols. New York and Oxford. Vol. 19, 20 and 21 Page 219, 278, 279.
- USDA, ARS, National Genetic Resources Program.
Germplasm Resources Information Network - (GRIN) [Online Database].
National Germplasm Resources Laboratory, Beltsville, Maryland.
<http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?209> [Accessed 29 June 2007]
- USDA, NRCS. 2005. The PLANTS Database, Version 3.5 (<http://plants.usda.gov>). Data compiled from various sources by Mark W. Skinner. National Plant Data Center, Baton Rouge, LA 70874-4490 USA. [Accessed 29 June 2007]
- Wilson, Linda M. 2006. Key to identification of invasive and native hawkweeds (*Hieracium* spp.) in the Pacific Northwest. B.C. Min. For. Range, For. Prac. Br., Kamloops, B.C.
- Wilson, L.M. 2002. Report presented to Washington State Commission on pesticide registration. Moscow, ID: University of Idaho. 1 p.